

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

WASTE TREATMENT LAGOON

(No.)

CODE 359

DEFINITION

An impoundment made by excavation or earthfill for biological treatment of animal or other agricultural waste.

PURPOSE

This practice may be applied as part of a resource management system to support the following:

- ☐ To biologically treat organic waste.
- ☐ To reduce pollution and protect the environment.

CONDITIONS WHERE PRACTICE APPLIES

This practice standard establishes the minimum acceptable requirements for design, construction, and operation of waste treatment lagoons. Embankments are limited to an effective height of 10.7 m (35 ft) or less and to hazard class (a). This standard does not apply to Waste Storage Ponds or to Waste Storage Structures.

This practice applies where:

1. an overall waste management system has been planned;
2. waste generated by agricultural production or processing needs treatment;
3. a lagoon can be located near the source of the waste and a minimum of 91 m (300 ft) from a neighboring residence or public area;
4. soils are suitable for retaining the waste or

can be sealed; and

5. A water supply is adequate to fill the lagoon about half full before operation and to maintain the design depth when the lagoon becomes fully operational.

CRITERIA

General criteria applicable to all purposes

Soil and foundation

The pond shall be located in soils with acceptable permeability, or the pond shall be lined. In accordance with Washington guidelines, the minimum seepage criteria for waste storage facilities are a permeability of less than 10⁻⁷ centimeters per sec and a specific discharge less than 1/8th of an inch per day. Chapter 7 of the Agricultural Waste Management Field Handbook (AWMFH) shall be used to address seepage and groundwater considerations for the design of ponds

Waste production

Waste treatment lagoons are designed on the basis of 5-day biochemical oxygen demand (BOD₅) or volatile solids (VS) loading. Design loading shall be based on the maximum weight of animals using the lagoon and on other waste introduced. Information on waste production is provided in Chapter 4 of the Agricultural Waste Management Field Manual. Reliable local determinations should be used if available.

Loading

Anaerobic waste treatment lagoons are designed on the basis of daily VS loading per 1,000 ft³ of lagoon

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

NRCS, WA
September, 1999